

REMARKS/ARGUMENTS

Support for the wording added to claims 1 and 19 is found in the specification at page 7, paragraph [0015], lines 7-13. No new matter is presented by this amendment.

Election of Species

The listing of pending claims in the Office Action is incorrect. The pending claims are claims 1 through 46, inclusive, and the listing in the "Office Action Summary" is incomplete by not including claims 29-39 and 42. The Election/Restriction requirement of September 28, 2006 that Applicants responded to with their "ELECTION OF SPECIES" (mailed by Applicants on October 27, 2006 and received by the PTO on November 2, 2006) was a requirement to elect a single disclosed species; it was not a restriction requirement. A restriction requirement requires an applicant to elect a group of claims from two or more groups set forth in the requirement. No restriction requirement was made in this case. Applicants note that the requirement to elect a single disclosed species that was mailed to Applications on September 28, 2006 is repeated verbatim in the present Action. No claims have been canceled by Applicants, and none should be withdrawn from consideration. Correction of the statement in the Office Action Summary and a proper listing of the claims and their status are respectfully requested.

Double Patenting

The rejection of claims 1-28, '40, 41, and 43-46 on the ground of nonstatutory obviousness-type double patenting over claims 1-14 of US Patent No. 6,682,759, is respectfully traversed. The claims of the '759 patent include two independent claims, claims 1 and 2. The body of claim 1 reads as follows:

dispersing said drug in a solid matrix to form a unitary core which upon immersion in gastric fluid releases said second drug by sustained release while retaining at least a portion of the mass of said solid matrix as a coherent body until said second drug is fully released therefrom;
depositing on the surface of said unitary core an aqueous suspension of particles of said first drug that are equal to or less than about 10 microns in diameter, using an amount of said first drug selected to achieve said weight ratio relative to said second drug; and

evaporating water from said aqueous suspension thus deposited to leave a solid shell encasing said unitary core and containing said first drug.

The body of claim 2 reads as follows:

combining said second drug with a first solid matrix to form a sustained-release layer, said first solid matrix being of a substance which when formed into a coherent body and immersed in gastric fluid releases said second drug by sustained release while retaining at least a portion of the mass of said first solid matrix as a coherent body until said second drug is fully released therefrom; and
combining particles of said first drug that are equal to or less than about 10 microns in diameter with particles of a second solid matrix to form an immediate-release layer adjoined to said sustained-release layer as a layered tablet, said second solid matrix being of a substance that separates into discrete matrix particles immediately upon immersion in gastric fluid, using amounts of said first and second drugs selected to achieve said weight ratio.

Both claims 1 and 2, and thereby all fourteen claims by incorporation, of the '759 patent are limited by the inclusion of particles of 10 microns in diameter of the immediate-release drug as the outer layer, and none of the claims include any mention of a polymeric film devoid of either drug as an intermediate layer between the sustained-release and immediate-release layers, as recited in all claims of the present application. Thus, the examiner's statement that "The '759 patent claims are drawn [to] an identical process save for a ratio of first to second drug. There is essentially no difference between the instant claims and the '759 patent" is incorrect and an inaccurate reflection of the instant invention. Neither the claims nor the specification of the '759 patent suggest the inclusion of an intermediate drug-free layer between the two layers, much less any of the benefits that are achievable thereby.

Claim Rejections - 35 USC § 103

The rejection of claims 1-28 as obvious over the disclosure of Johnson et al. US 6,171,618 is respectfully traversed. The membrane placed over the sustained-release pseudoephedrine layer in Johnson et al. is a "rate-limiting membrane which imparts sustained-release behavior to the core" (column 3, lines 25-27; column 5 lines 9-10; and other locations in the specification). This rate-limiting membrane is variously described in different embodiments

in the specification as either permeable to both water and pseudoephedrine or impermeable to pseudoephedrine (regardless of water). In either case, however, the membrane remains intact long enough to serve as a barrier to sustain (i.e., retard) the release of the pseudoephedrine from the core of the tablet. The membrane causes this sustained release of the pseudoephedrine to occur by requiring the pseudoephedrine to diffuse through it (in the case of membranes that are permeable to the drug) or by requiring the pseudoephedrine to flow around it (in the case of membranes that contain a hole drilled through the membrane, or cone-shaped membranes with tips cut off, or membranes that have strips removed to expose a slit of the core -- all of which are described in columns 7 and 8). These all require the membrane to remain intact for 4-36 hours, which, as the examiner has recognized, is the sustained-release time period as quoted in the specification for the pseudoephedrine in the core. Applicants' invention, by contrast, uses a film that is soluble in gastrointestinal fluid and will thereby dissolve immediately upon contact with the gastrointestinal fluid. Applicants' film does not prolong the release of the drug in the core of the tablet since the film dissolves as soon as the immediate-release layer is dissolved. This is reflected in the current amendment, which inserts explicit language to this effect in each of the two independent claims.

Like Applicants, Johnson et al. disclose the use of a core matrix that is a "sustained release matrix that meters pseudoephedrine out over a period of 4 to 36 hours, the matrix thus constituting the core" (column 3, lines 20-23 of Johnson et al.). However, this is disclosed by Johnson et al. as an alternative to the use of the membrane. See the succeeding sentence at lines 23-27, which reads "Alternatively, the pseudoephedrine core can comprise a shaped pseudoephedrine immediate release composition and a surrounding, rate limiting membrane which imparts sustained release behavior to the core." (Emphasis added) Johnson et al. do not disclose both the sustained-release core and the barrier together in the same tablet, while Applicants' invention, by contrast, does, i.e., both a sustained-release core matrix and a film over the matrix. Johnson et al. offer no suggestion or reason for including a film of any kind over the core, i.e., between the core and the outer, immediate-release layer, when the core is itself rate-limiting.

The rejection of claims 40, 41, and 43-36 over Johnson et al. in view of Timmins et al. US 6,031,004 and Sauerberg et al. US 6,274,608 is likewise traversed. Both Timmins et al. and Sauerberg et al. are cited for their disclosures of drug combinations. Neither Timmins et al. nor Sauerberg et al. however disclose the use of sustained-release and immediate-release layers in the same dosage form, much less the inclusion of a drug-free polymeric film between the two layers that is soluble in gastrointestinal fluid.

Further Distinctions for Independent Consideration

While the explanations set forth above apply to all pending claims of this application, Applicants request independent consideration of certain dependent claims that contain limitations that have patentable merit of their own. These dependent claims are claims 12, 13, 25, and 26, each of which recites a particular range of the weight ratio of the polymeric film to the core (the core being referred to in the claims as a "unitary body"). Weight ratios within the ranges recited in these claims are significantly lower than any of the weight ratios either suggested or actually disclosed in Johnson et al., the only patent among those cited that mentions the possibility of a barrier layer between the sustained-release and immediate-release portions of the tablet. While Johnson et al. fail to specify a range or to place limits on the weight ratio in the specification, the working examples in Johnson et al. show weight ratios that are far above 0.1:1, the upper limits of the ranges in Applicants' claims 12 and 25, and likewise far above 0.08:1, the upper limit in Applicants' claims 13 and 26. These working examples are Examples 2 and 4, each of which lists actual weights -- see the uppermost table in column 15 and the table at the top of column 21. Converting these to weight percents, i.e., the weight of the membrane relative to the membrane and the core combined, the results are 23% in Example 2 and 16.7% in Example 4. In terms of the ratio of the weight of the film to the weight of the core, these calculate out to 0.30:1 for Example 2 and 0.20:1 for Example 4. Compare these to Applicants' upper limits of 0.1:1 and 0.08:1.

This difference in weight ratio is not a simple matter of optimization or design choice. Johnson et al. state explicitly, as noted above, that the function of the membrane when it is present is to delay the release of the pseudoephedrine from the core, either by blocking the

pseudoephedrine and restricting it to a hole or other opening left uncovered by the membrane, or by requiring the pseudoephedrine to diffuse through the membrane. A relatively thick membrane is needed in both cases. In Applicants' invention, the function of the polymeric film is to prevent the immediate-release drug from diffusing into the matrix used in the sustained-release core before the immediate-release drug has a chance to be released. If this diffusion were allowed to occur, the high-molecular-weight polymer used as the matrix in the core would slow down the release of the immediate-release drug after the tablet is administered, thereby interfering with the overall release profile. This does not require a thick layer of polymeric film but can be achieved with a relatively thin layer. There is no suggestion in Johnson et al. that there would be anything to gain by using such a thin film between the sustained-release core and immediate-release outer layer.

CONCLUSION

In view of the foregoing, Applicants believe all claims pending in this Application are in condition for allowance. Correction of the claim listing in the Office Action and the issuance of a formal Notice of Allowance are respectfully requested. Should any matters remain that can be resolved by a conference with Applicants' attorney, the Examiner is encouraged to telephone the undersigned at 415-576-0200.

Respectfully submitted,



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